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CATALOG E-182

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MOVIOLA'S NEW CONSOLE EDITOR

magnasync moviola **magnasync/moviola corporation** *A Subsidiary of Craig Corporation*

5539 RIVERTON AVENUE / NORTH HOLLYWOOD, CALIFORNIA 91601 / (213) 877-2791

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MOVIOLA'S NEW CONSOLE EDITOR

The Moviola "Anniversary Series" horizontal console editing table has been designed to meet the demands of all facets of editing within the motion picture and television industries. Magnasync/Moviola has conducted a worldwide survey study to determine the most desirable equipment features as related to contemporary editing techniques and future possibilities.

Most significant in this search for new ideas in equipment design are utilization of the overall engineering technology existing within the Magnasync/Moviola manufacturing divisions. This engineering and development staff has integrated many features from tape transport, computer and logic systems into the editing console. These features, added to the new Moviola "SyncroPrism" projection system, provide the industry with an entirely new concept of editing capability and convenience.

Considering the requirements of motion picture, television, education, industry and documentation, the Moviola Console has been designed not only as an editing device, but as a "preview theatre." The picture and sound quality have been far advanced over contemporary equipment, whereupon the operator can more precisely compose, edit and mix the program material. Since the unit is equipped with two sound heads and a composite optical/magnetic picture head, dialogue, music and effects can be cut to the picture with sound mixing and listening quality comparable to the final composite. Slide attenuators are used for each sound track plus a master gain control and high/low equalization controls.

ENGINEERED RELIABILITY

The engineering practice followed to achieve the modular design of both mechanical and electronic components has been further extended to include "engineered reliability." All functional factors were studied including component redundancy. Interchangeable modules comprise the electronic system and utilize the "mother-board" principal for circuit function distribution. A readily accessible card cage houses the plug-in circuit boards which control the modular transports and readout system.

With motion picture production activities remotely extended, maintenance becomes a prominent consideration. Equipment "down time" can ruin a production schedule or forfeit an artistic achievement. Moviola has also included a comprehensive instruction and graphic illustrated maintenance manual. A step-by-step digest of cause and remedy data has been prepared in both layman and engineering terms. Both electronic and mechanical interchangeable modules are available through Moviola world-wide distribution centers.

FILM TORQUE TRAVERSE SYSTEM

Torque motor assemblies as used in computers and industrial tape transports are incorporated into the editing console. Each of the two sound heads and the picture head have independent torque turntable film handling assemblies. Selectively, the operator can traverse the film fast-forward or fast-reverse or the "master control" will rapidly forward or rewind the picture and two sound tracks simultaneously.

The rapid film traverse reaches ten times sound speed without film spillage or damage. Push button and rotary controls are used with the same "solid state" logic as is found in sophisticated tape duplicating systems. When the stop button is pushed, the respective film turntable assemblies precisely stop with no spillage or loss in tension.

MOVIOLA "MICRO INCHING" SPROCKET DRIVE

The drive sprockets of the picture head and two sound heads are electrically controlled for "inching" or for single frame viewing and locating picture and sound start marks.

PICTURE/SOUND "INTERLOCK" AT TEN TIMES SOUND SPEED

The servo-tach interlock drive system is operated from a single master control. The film can be moved from one or two frames per second up to ten times "sound speed" through the sprocket gate assemblies.

The movement of the control provides acceleration from "standstill" to sound speed and from sound speed, fast forward. With movement of the control to the left, the film is driven in reverse.

With "micro-variable" control over the speed, the film can be stopped precisely at the end of a scene for ease in marking. Correspondingly, the rapid film traverse provides ease in scene selection.

When using the servo-tach drive either or both sound head transports can be programmed for decoupling from the "locked mode" and the film rapidly moved forward or reverse. For example, soundtrack No. 2 may be rapidly rewound while the picture and sound track No. 1 remain locked together and traversing at sound speed. Alternately the programming can be transposed to the "master" control for all units to "rewind" or "fast forward."

The new servo-tach motor system maintains a constant torque ratio on the drive sprockets regardless of the speed. This breakthrough in film handling eliminates film spillage, buckling and damage. This feature, coupled with controlled tensions from the torque turntables, makes the console editor a "unified" transport assembly.

MOVIOLA ELECTROMATIC DIFFERENTIAL SYSTEM

To speed the editing process and convenience, Moviola has developed a new system of film advance and retard. The system is completely electrically operated and controlled to provide selective advance or retard of both sound head transports. While the picture is in motion at sound speed, through the servo drive either of the sound heads can be advanced or retarded at a rate of four frames per second. For example, if the dialogue is out of sync to the picture, the operator can push either the advance or retard button to adjust for precise unity. For added convenience, the picture aperture and the sound heads are in parallel placement for precise "sync" or "marking."

The advance/retard capability also enables the editor to sync music and effects, such as a door slam, or have the music starting and/or ending on a precise "beat." With only two control buttons for the picture-sound interlock start/stop time loss has thereby been minimized.

MOVIOLA CHRONA-TACH FRAME/FOOTAGE-SECOND/MINUTES DISPLAY SYSTEM

The Moviola chrona-tach system computes and displays frames and footage or minutes and seconds. The electronic tachometer output is coupled to the servo motor drive. Therefore, the tabulation begins from a single frame per second and will compute up to ten times sound speed. In other words, this would approximate 240 frames per second. Transversely, the counter can be programmed to display seconds and minutes.

Considering film as a medium for television and the cost per second of prime time, the chrona-tach feature automatically displays its importance. Additionally, this computer readout enables the operator to post his log sheet for all facets of the editing process as well as support data for the final printing process. Details of each editing function can be maintained, whereas the exact frame and footage or exact seconds and minutes may be programmed for readout either in the forward or reverse mode.

FULL VISION THREADING

Each transport has been designed with two drive sprockets suitably spaced to provide full vision threading. Both picture and sound tracks may be "inched" forward or reverse for precise adjustment of their respective "sync-marks."

CALIBRATED LOOP SETTING

A breakthrough in threading has been accomplished since the picture and sound head threading are similar. After threading the left hand sprocket, the film is pulled upward over the right hand sprocket calibrating diameter to maximum tension — i.e., lowering the film slightly with release of tension positions the film on the appropriate sprocket teeth for optimum tension. Constant maximum picture stability provides "preview theatre" quality.

ADVANCE/RETARD READOUT DISPLAY

The selective advance and retard of both sound heads is tabulated in the digital display window. A separate selector switch is used for each sound head and is operatable when the picture is traversing at sound speed.

Either the "advance" or "retard" displaces the film four frames per second at sound speed. Two additional windows display the + or − command, and the film advance or retard count will read out up to 99 frames. The frame count and + or − "readout" will remain displayed until the sound head is removed from "lock" with the picture.

MOVIOLA "IC" AUDIO SYSTEM

A unique combination of integrated circuit chips comprise the new console audio system. SMPTE or CCIR standards are maintained for frequency response and output level for two standard 16mm sound heads, plus one single system MAG head and one optical sound head.

There are four preamplifiers (one for each head) which are mixed with "slide attenuators" to a master gain control and monitor amplifier. A high/low frequency equalizer has a "normal" setting of flat response with boost and attenuation of both high and low frequencies.

The integrated circuits used have the critical circuitry self-contained in the miniature "chip." The overall circuit reliability factor is enhanced due to the fewer number of external components involved. Additionally, the cost for replacing the integrated chips is far less than conventional "discreet component" plug-in type circuit boards. The console editor audio system design is truly equal to the present state-of-the-art.

MOBILITY AND PORTABILITY

Considering todays fast moving pace and the trend to location production, the console editor incorporates "mobility" and "fold-up" features never before found in this type of equipment.

The two upright console pedestals are equipped with casters. A special hinge was designed which permits the console to be tipped in a vertical position, whereupon it can be moved through a 28 inch door opening from room to room. Additionally, the two pedestals are hinged inward to the bottom of the console and lock into position for shipping purposes. For example, the fold-up feature allows the unit to be carried in the average station wagon. The screen box is detachable and can be carried separately, thereby reducing the overall primary bulk factor.

SINGLE FRAME VIEWING

Single frame viewing with full picture brightness is now possible with no heat damage to the film. A new condenser lens and mirror system eliminates the heat transmission from the projection lamp. This feature, coupled with the use of a "dichroic" mirror and tungsten-halogen lamp, provides unusual picture brightness.

FORWARD/REVERSE OPERATIONS THROUGH DRIVE SPROCKETS

The servo-tach motor system incorporates circuitry for regulating the acceleration rate at any setting on the controls. This feature eliminates "jumpy" starts and stops and coordinates the acceleration equal to the takeup or rewind turntables. "Looping" and "jerking" of the film from standstill, "sound speed" to ten times sound speed is eliminated.

The sprocket gate assembly and stripper arrangement maintains precise control of the film from zero to full acceleration. This feature is also maintained in the fast-forward/fast-reverse modes. The speed in this mode accumulates to ten times sound speed. This means that 1,200 feet of film or a half-hour program can be rewound in less than three minutes.

QUIETNESS OF OPERATION

At any speed the unit is exceptionally quiet. Therefore, the true quality of dialogue, music and effects can be determined with no mechanical noises to distract. With the use of special small pitch "toothed belts" and sprocket pulleys, the usual gear meshing noises have been eliminated. The unit is once again exceptionally quiet even when the film is traversing at ten times sound speed.

MOVIOLA "COMPOSITE TOOLING" SYSTEM

With the advance change from upright to the horizontal editing, it has been necessary to design a complete new system of production tooling. Consistent with the design concept,

parts have been tooled for precise interchangeability, plus many new materials have been utilized. Although some parts are subject to wear and replacement, the use of composite tooling has minimized the installation time within the field.

Since the console has mobility, it is moved down an assembly line and components are added from station to station to a final soundproof testing room. Although each assembly was separately pretested, a final "composite test" is made by operating the complete system.

Moviola has just passed the 50 year mark of service to the motion picture and television industries. This composite background of experience is now consummated by our pledge to continue this service for the next 50 years through research and development of new products designed to meet the rapidly expanding industry requirements.

SPECIFICATIONS
MOVIOLA CONSOLE EDITOR

PICTURE HEAD: One "Synchroprism" projection head with "DUAL" sprocket "Servo-Tach" drive system. Picture screen 8½ x 11½".

THREADING: Dual sprockets with "calibrated loop setting" for proper film tension over picture aperture and MAG Heads. "Full vision" film path for "micro-inching" of sync marks.

SOUND HEADS: Two 16mm edge track or center track SMPTE or CCIR equalization.

COMPOSITE SOUND HEAD: One optical reproduce head equalized and adjusted to SMPTE standards test films; frequency response 50 to 7,000 cycles, + or — 2 db. One magnetic reproduce head for "single system" sound reproduction. Azimuth and frequency response characteristics same as edge/center track sound heads.

SERVO-TACH DRIVE SYSTEM: The picture head and two sound heads are each driven by separate Moviola servo-tach interlock motors. A crystal controlled frequency source provides the primary speed rate of 24 FPS regardless of the external input frequency (50 or 60 cycles). A selector switch can change the film sync speed rate from 24 to 25 FPS. Push buttons are used for instant sound speed, start, stop, whereas a master rotary control will traverse the picture and sound interlocked from three FPS to 240 FPS (ten times sound speed) forward or reverse.

SELECTIVE RAPID FAST-FORWARD-REVERSE: The picture head and two sound heads may be selectively programmed for rapid forward or rapid reverse. Alternately either or both sound heads may be placed in "rapid" while the picture is in motion at sync. speed.

ELECTRONIC DIFFERENTIAL: Picture and two sound heads can be selectively programmed for coupling and decoupling from the "lock" mode, for marking, viewing and precise listening purposes. Correspondingly, each sound head may be decoupled for variable speed film movement.

ADVANCE/RETARD: The film while traversing through either of the sound heads can be precisely advanced or retarded. Two push buttons control this function at a rate of 4 FPS.

CHRONO-TACH READOUT SYSTEM: Readout display is six digits; two digits for frame and seconds count and four digits for footage and minutes. Advance/retard display — four digits (2 per sound head) with up/down counter for + or readout. Footage computer counts forward or reverse; add or subtract. Seconds and minutes readout capability is alternate with frames footage display. Logic system of counter-computer converts frame count to seconds and feet count to minutes, and will store and selectively display footage or time count and is functional in forward or reverse modes.

DISPLAY MEMORY: After initial selection, system will retain the computed information on display until the counter is manually reset.

AUDIO SYSTEM: Solid state electronics using integrated circuit amplifiers for reproduce preamps and monitor amplifier.

HIGH/LOW EQUALIZATION: Independent equalizers with boost and attenuation for both high and low frequencies. Equalizers have "zero loss" characteristics at zero setting.

AUDIO MIXING: Each of the two sound heads, the optical head, and the single system magnetic head have separate amplifiers and slide attenuators for adjusting output levels. A master gain control adjusts levels from a selective "mix" into the monitor amplifier.

FREQUENCY RESPONSE: "MAG" 50 to 10,000 cycles + or — 2 db. Units tested with SMPTE or CCIR multifrequency standard films.

OUTPUTS: Two speakers self-contained in the screen enclosure, or an external speaker plus one headphone output monitor jack.

POWER REQUIREMENTS: 115 volt 50 or 60 cycle, 230 v., 50 or 60 cycle operation. A crystal controlled frequency source provides the primary speed rate of 24 f.p.s. regardless of the external input frequency (50 or 60 cycles). A selector switch can change the film sync speed rate from 24 to 25 f.p.s.

POWER CONSUMPTION: 1,200 watts maximum for picture and sound heads.

SIZE: Console length — 61"; depth — 36", including picture screen enclosure — 32" with screen enclosure removed; height from bottom of console to top of reel spindles — 9½"; console height with pedestals in upright position — 30" to splicing and control position; 32" to film handling turntables. Weight of entire console, including fold-up pedestal assemblies and speaker enclosures — approximately 400 lbs.

SHIPPING WEIGHT: Domestic or overseas weight 445 lbs.

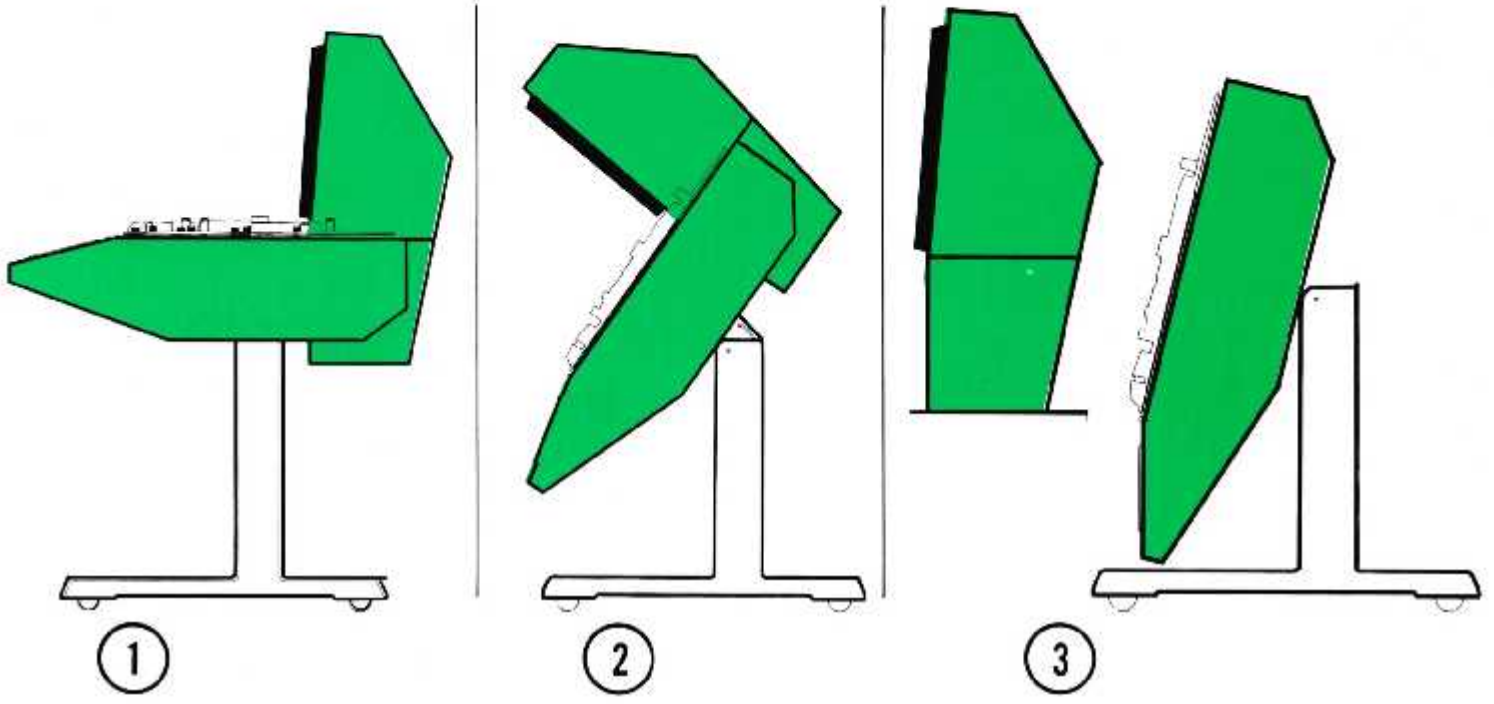
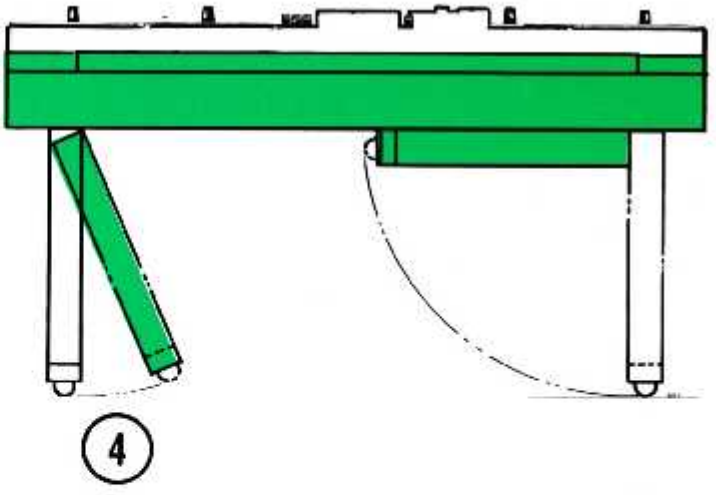


FIGURE #1. Console normal upright position complete with projection and digital readout system.

FIGURE #2. Unit locked in position for room to room mobility.

FIGURE #3. Projection enclosure removed and console locked in "storage" position. Unit is still mobile and will pass through 28" wide door opening.

FIGURE #4. Pedestal assemblies of console fold inward to bottom of unit and lock into position. Assembly is then portable for transport in average station wagon. Projection enclosure is carried separately to reduce overall dimension bulk.



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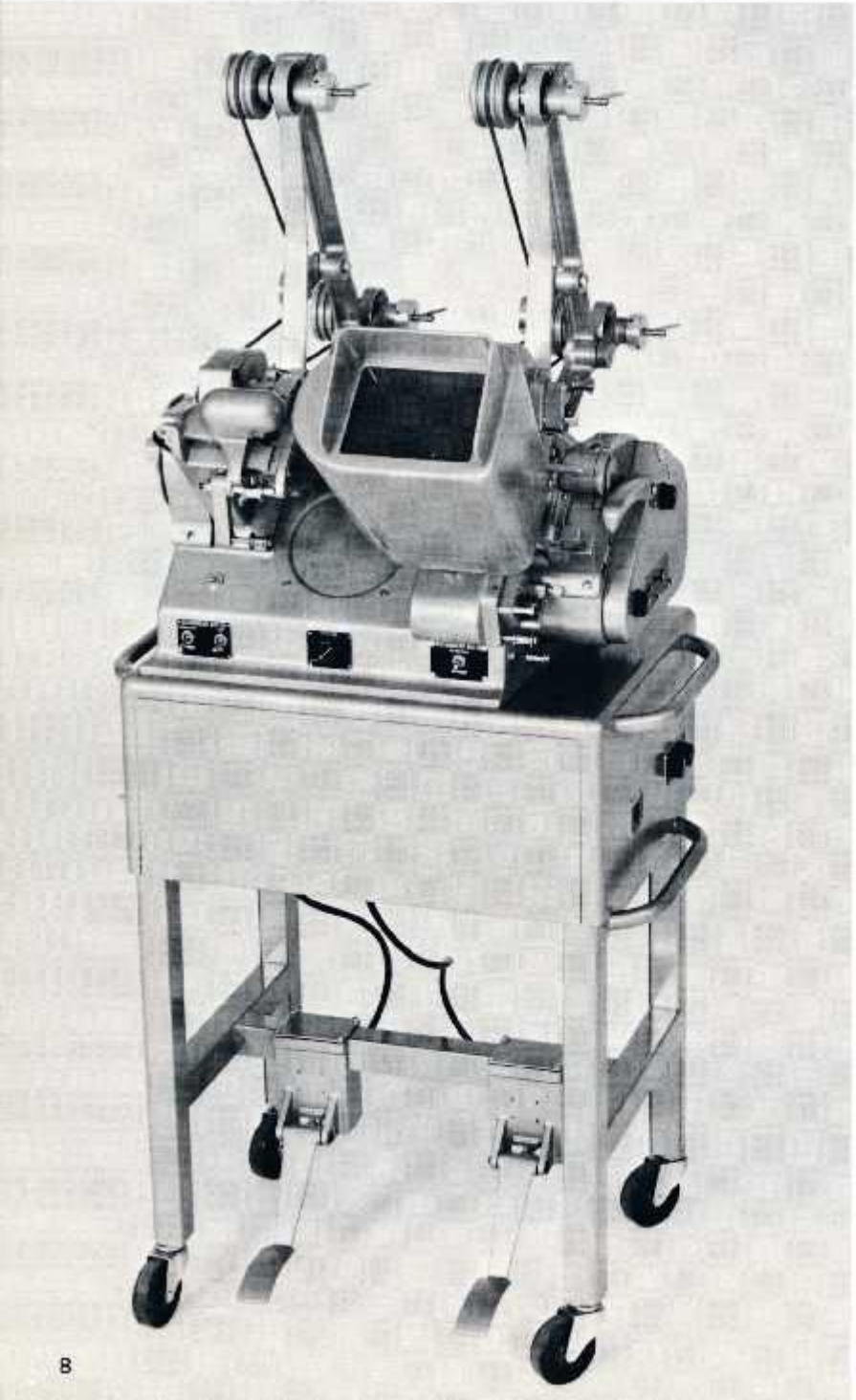
"SERIES 20"
FOR 16 OR 35 MM
PICTURE FILM
SOUND FILM
COMPOSITE FILM

Moviola film editing machines

WITH NEW SOLID STATE AMPLIFIERS*



"Series 20" Moviola Editing Machines have gained world wide acceptance, not only for their quality of workmanship and reliability, but also for their streamlined styling and greater convenience of use.

The basic structure of the machine is smoothly finished cast aluminum. Heavy gauge steel sheet is used for the cabinet and stand. Corners and edges are neatly rounded to prevent film snags. The finish is a durable grey-green hammertone baked enamel.

The modular or building block design of the "Series 20" has proven to be of great benefit to Film Editors. Through proper selection of standard 16 mm and 35 mm components the machine that suits the Editor's exact requirements may be assembled. These requirements may vary from a table model for viewing short lengths of hand held picture film to a console sound model capable of running several individual picture and sound films in synchronism. Additionally, in the event it becomes necessary for the editor to change either picture or sound film size, comparable modular units in 16 mm and 35 mm may be readily interchanged.

Model UL-20-S (16mm)
Model UD-20-S (35mm similar)

*MODELS UD-20-S; UD-20-CS; UL-20-S; UL-20-CS NOW CONTAIN SOLID STATE AMPLIFIERS.

SERIES 20 COMPONENTS

The components for the Series 20 Moviola Editing Machines, range from counters capable of measuring frames and footage and seconds, minutes and hours to electric brakes.

COMPOSITE SOUND HEADS

A composite sound head is a unit which is attached to and becomes an integral part of a MOVIOLA picture head equipped with reel spindles. Its purpose is to reproduce optical sound recorded on picture film.

The 16 mm composite sound head (LS-20) is available on special order to reproduce magnetic (LS-20-M) as well as optical sound.

A rotary stabilizer is employed in the film transport system to assure high quality sound.

SEPARATE SOUND HEADS

The 16 mm* heads will accommodate 16 mm single or double perforated magnetic film. The standard 16 mm sound head is equipped with an over-mag (magnetic coating up) and an optical sound playback head. However, on special order, an UNDER-MAG arrangement (Magnetic coating down) is available. The 16 mm sound head can be made with an OVER-MAG or an UNDER-MAG — but NOT BOTH.

*(SL-20-H is the model designation for a sound head equipped with reel spindle and, SK-20-H without spindle)

The 35 mm heads (SD-20-H — with reel spindle. SC-20-H — without reel spindle) will accommodate either 35 mm film or 35 mm and 17½ mm if ordered with special rollers.

Standard heads will reproduce either optical or magnetic sound track recorded on separate film.

The internal gearing is arranged so that sound film is transported in synchronism with either a 16 mm or 35 mm Moviola picture head. Sound heads are designed to facilitate threading. The film can be readily marked with opening of the film gate.

Standard arrangement provides for magnetic head above film (magnetic coating up) or OVER-MAG. The Mag Head can be easily adjusted across the film for any track position, or raised when the optical sound is being used. An UNDER-MAG arrangement (for magnetic coating down) is available on special order. Unlike the 16 mm sound head, the 35 mm sound head can be made up with OVER AND UNDER-MAG in one unit. However, some modification is necessary to the body assembly as a different type of Volume Control is required.

The MANUAL SEARCH HEAD — MK-16 for 16 mm and MK-35 for 35 mm, can be installed on a sound head for rapid sound track searching as illustrated on Page 13

PICTURE HEADS

Picture is viewed on a 4" x 5" self contained rear projection screen, with illumination that is adequate for viewing in a normally lighted room.

Threading is simplified, since the film is placed in the gate in the same orientation as it is to be viewed.

A lever is provided to frame the picture on the screen. Marking of film can be accomplished without opening the film gate. Cine movement is by means of "Geneva" intermittent mechanism. Single frame operation can be accomplished without overheating the film.

Shutter is automatic and comes into action at about 20 frames per second and will drop out of action at slow speeds to eliminate severe flicker. Manually operated brake permits stopping machine within a few frames.

BODY AND CABINET ASSEMBLY

The body and cabinet assembly is the same whether for 16 mm or 35 mm heads. The only difference being that a model UK or UC-20-S body is designed for heads without reel spindles and, the UL or UD-20-S body is equipped with guide rollers and rear jerk-roller assemblies and is drilled to accept reel spindles.

The console body and cabinet assembly contains the projection lamp, variable and constant speed motors, amplifier and speaker, controls and switches.

The table model body assembly contains the projection lamp, variable speed motor, operating controls and switches.

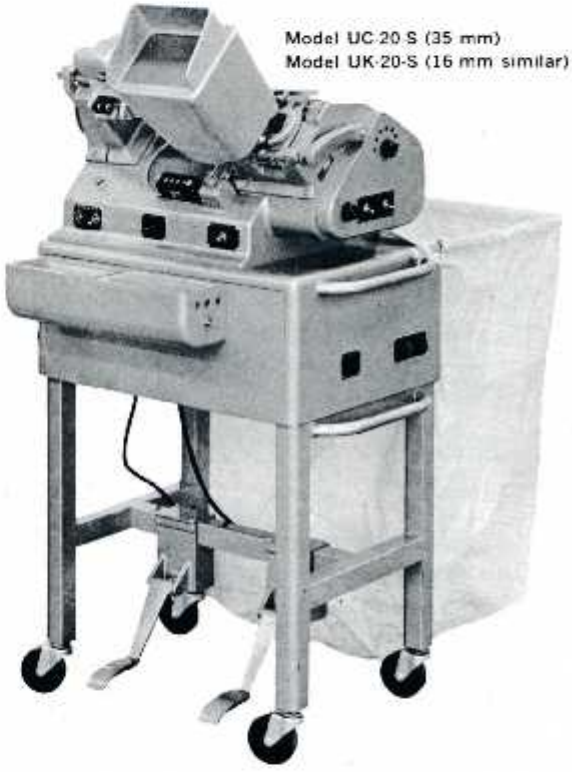
Access doors are provided for projection lamp replacement and for servicing motors and the sound system.

Console model body and cabinet assembly is mounted on a separate stand with casters. Foot controls are fastened to the crossbar of the stand.

Model D-20 (35 mm)
Model L-20 (16 mm similar)
Counter extra

TABLE MODELS

Picture viewers are available in table models. The standard picture head is mounted on a special aluminum body which houses the variable speed motor, projection lamp and necessary controls and switches. A power cable and foot controller with a 6 ft. cord are included.



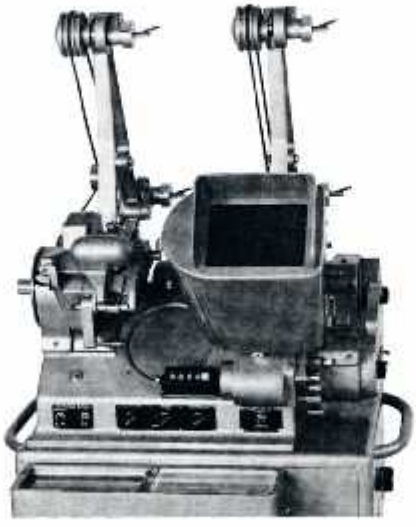
Model UC-20-S (35 mm)
Model UK-20-S (16 mm similar)

MODELS WITHOUT REEL SPINDLES

For many editorial operations where short pieces of hand held film are involved, models without reel spindles are available. However, if the machine is intended to be used later with reels, it is advisable to get a model with reel spindles initially, since change-over requires extensive modification.

Illustration shows following optional extras: Counter, Lightwell, 4" x 5" Viewing Screen and film bag with frame.

Model SD-20-H
(35mm Sound Head)
Interchangeable with
SL-20-H (16mm)



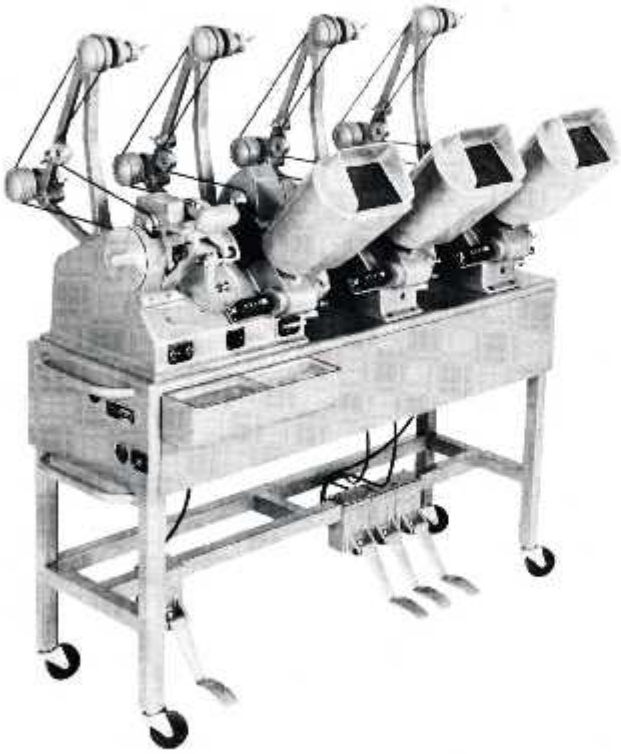
Model UL-20-S
Counter and Lightwell
extra

Model D-20-H
(35mm Picture Head)
Interchangeable with
L-20-H (16mm)

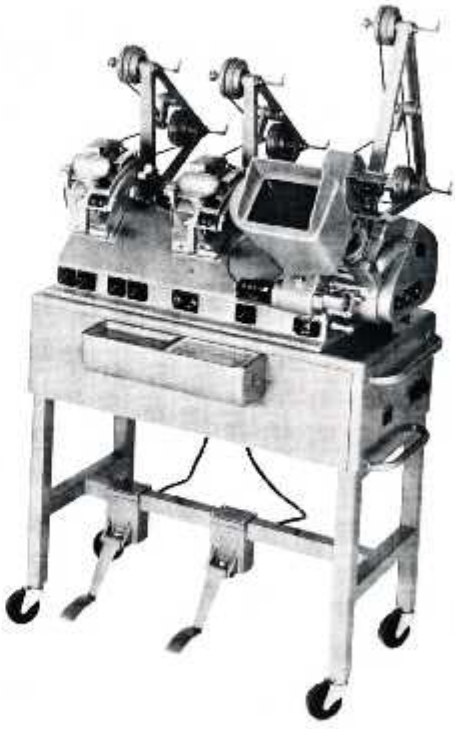
INTERCHANGEABLE PICTURE AND SOUND HEADS

Versatility of the "Series 20" modular design permits easy interchange of 16 mm Picture and Separate Sound Heads with corresponding models in 35 mm. The design permits a 35 mm Picture Head to operate in synchronism with a 16 mm Sound Head and vice versa.

SPECIAL MOVIOLAS



Model U3L-20-S, equipped with footage counter on each picture head; lightwell and tray.



Model UD-20-2-S, equipped with footage counter; lightwell and tray.

ORDERING DESIGNATIONS

The table below is for your convenience in ordering the Moviola to fit your requirements. If you wish further help in selecting your components, we will be happy to advise you.

Model		Picture Head 3"x4" Screen	Composite Sound Head	Separate Sound Head	†Reel Spindles	Variable Speed Motor	Constant Speed Motor	Table Model	Floor Model W/Sound
16 mm	35 mm								
K-20	C-20	●				●		●	
L-20	D-20	●			●	●		●	
UK-20-S	UC-20-S	●		●		●	●		●
UL-20-S	UD-20-S	●		●	●	●	●		●
UL-20-CS	UD-20-CS	●	●	●	●	●	●		●

† Max. Reel Size: 16mm Picture Head — 15", Sound Head — 15"
35mm Picture Head — 15", Sound Head — 10"
— Bracket for larger reels available on special order.

Power Supply: 115 volts, 60 cycle, single phase is standard. When ordering, please specify if other power supply is desired.

OPTIONAL EXTRA EQUIPMENT

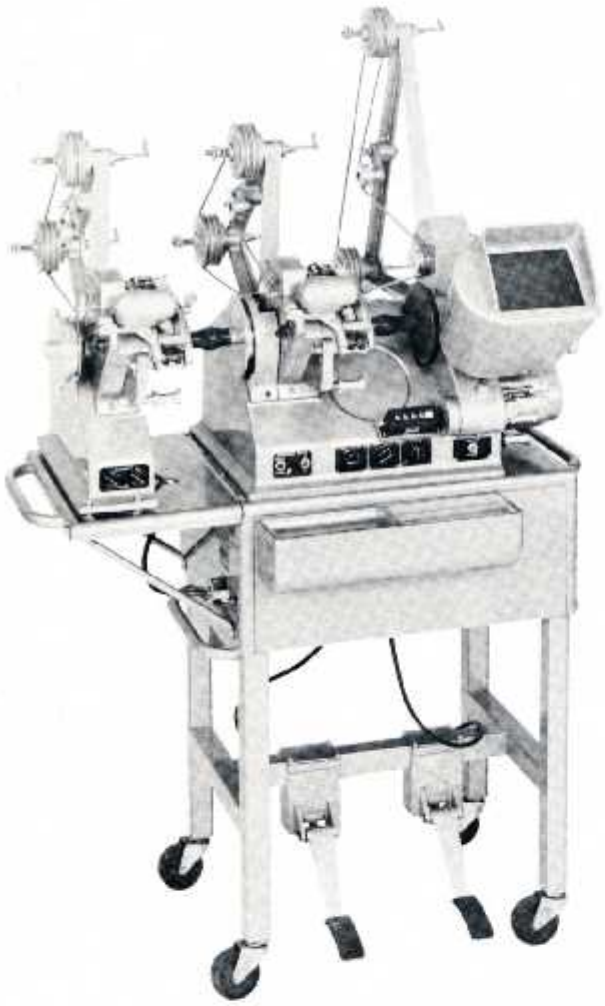
Counters for:
- Feet and frames
- Seconds and tenths
- Frames only
- Hours, Mins and Secs

Lightwell
Electric Brake
Film bag and frame
Transformer for 230 volts
Synchronous motor drive
Cinemascope adaptation on 35mm Picture Head
17½ mm adaptation on 35mm Separate Sound Head
*Searching Head in place of Separate Sound Head
Dust Cover, white vinyl
Headphones with cord and plug
*Add-A-Sound Head Cabinet Extension
*Manual Search facility on Separate Sound Head
"Under-Mag" on Separate Sound Head
Magnetic sound on 16mm Composite Sound Head
Single Frame Operation

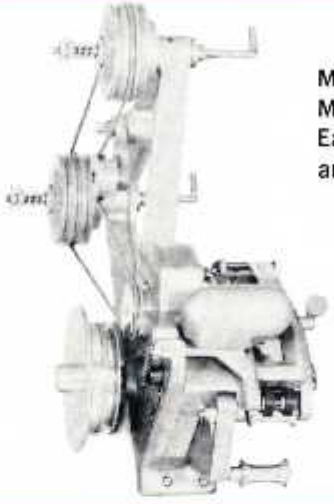
*See separate catalog pages describing these items.

Add a soundhead kit

FOR MULTIPLE SOUND TRACK EDITING



Model UD-20-S shown with CE-20 Cabinet Extension and Separate Sound Head, Model SD-20-H.



Model SD-20-H (35mm) shown
Model SL-20-H (16mm) similar
Each equipped to play optical and magnetic sound track.

1. Provisions for separate magnetic volume control over each sound head.**
2. Plug-in attachments to amplifier.
3. Strong, easy to install from furnished instructions.

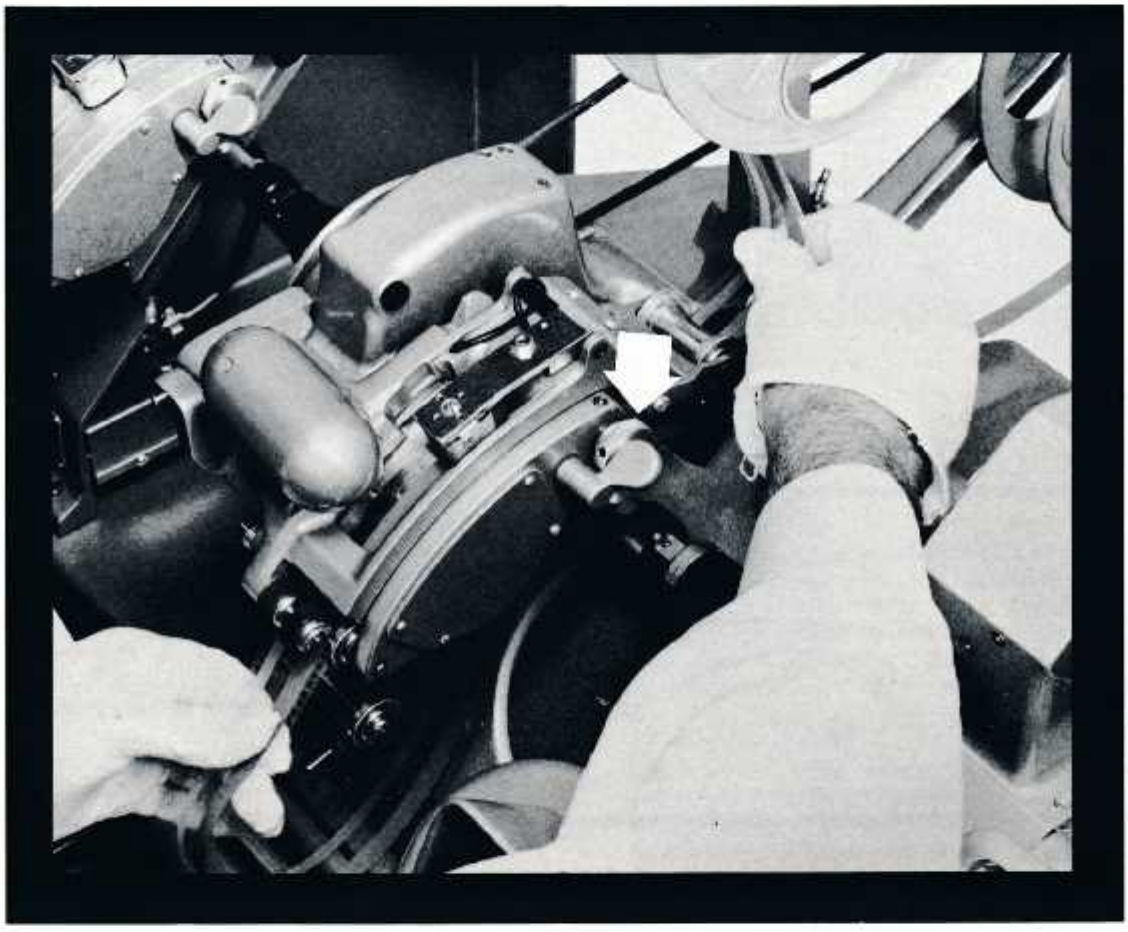
**For mixing magnetic sound tracks only. To mix optical sound tracks amplifier modifications are required. Contact factory for details.

Manual search head

CONVERSION KIT

MK-16 for 16mm • MK-35 for 35mm

TO MODIFY YOUR MOVIOLA SOUND HEAD FOR RAPID SOUND TRACK SEARCHING



To operate, merely turn the Search Head control knob "out" to make the sprocket free wheeling. The film can then be moved past the pick-up head manually to quickly pin point hard to read sound effects, music or dialog. Turn the control knob "in" and resume synchronized operation.

This device is available as optional extra equipment on your new Moviola or it can be installed on your present machine from instructions furnished with each kit. No special tools required.

magnasync moviola

MOVIOLA junior

...Only Magnasync/Moviola could put all of its half-century of quality and leadership into this NEW MOVIOLA junior Table Editor...and at a fraction of the cost of its big brother!

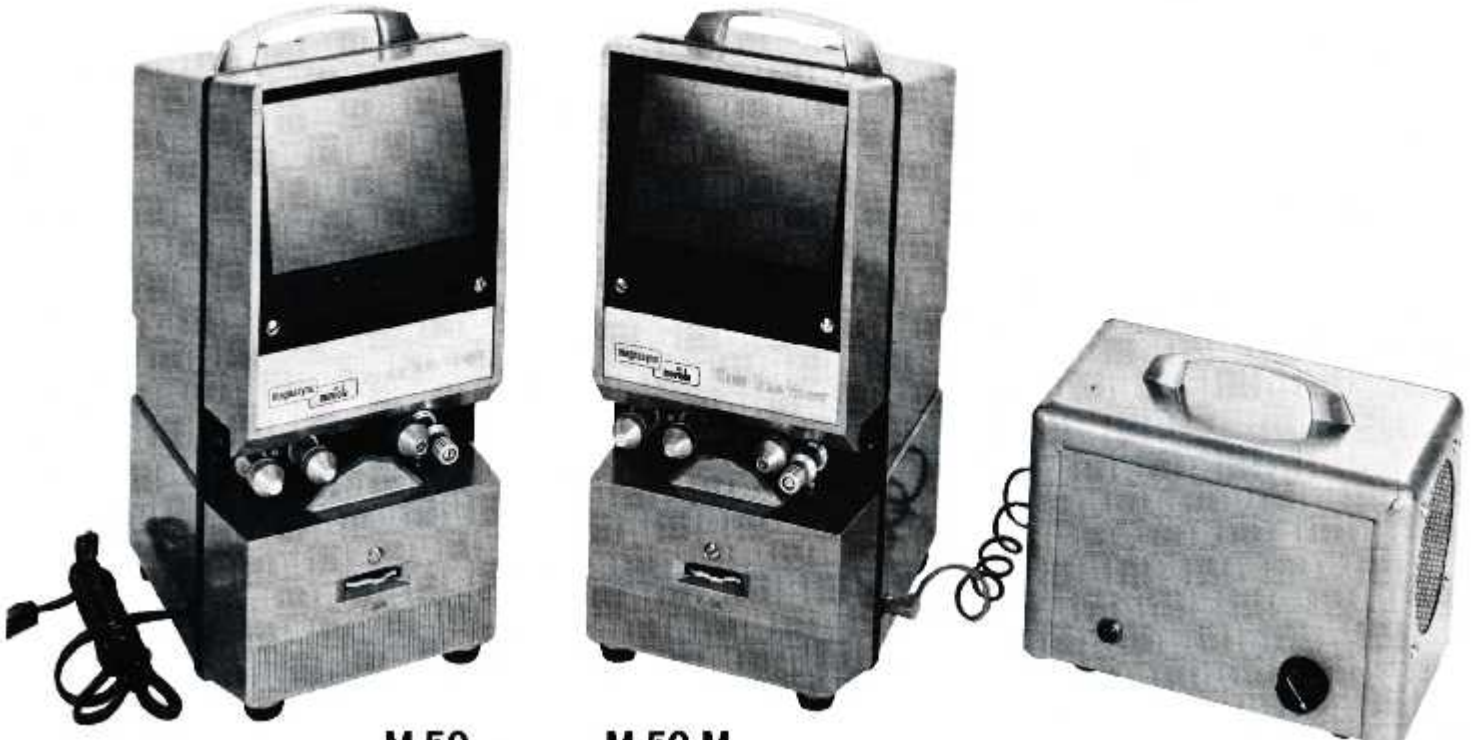
FEATURES INCLUDE:

- The Famous Moviola M-50 Viewer!
- 3 Gang Synchronizer with Mag Heads, 16mm.
- Footage Counter.
- Motor Driven.
- Built-in Solid State Mixer with Amplifier Utilizing Slide Attenuators.

OPTIONS

- Decoupler
- Under Mag Heads

"MOVIOLA 50" PROFESSIONAL TABLE VIEWERS



M-50 M-50-M

THE "M-50"

The 16MM table viewer is a manually operated film editing machine. It consists, basically, of a light source, film slide, an 8-sided prism, projection lens, guides and locking sprockets, reflecting and framing mirrors and a viewing screen, all contained within a durable aluminum housing. The prism produces a low flicker image on the viewing screen for improved viewing resolution. The prism is gear synchronized to the drive sprocket. Ball bearings on the prism and sprocket allow the film to be moved through the viewer, at hand-rewinding speed, without scratching the surface or tearing the sprocket holes of the film. The viewer is straight line loaded and unloaded. The film is engaged in the drive sprocket and cannot lose synchronization. The drive sprocket locking lever also turns the viewer light source on and off eliminating unnecessary bulb burn time. The viewing screen is a standard wide angle screen which permits several people to view the film editing at the same time. A slip-on hood is available for operation in abnormally bright editing rooms.

DIMENSIONS:
6⅝" wide, 7⅝" deep, 14⅝" high.
Screen: 5" wide.

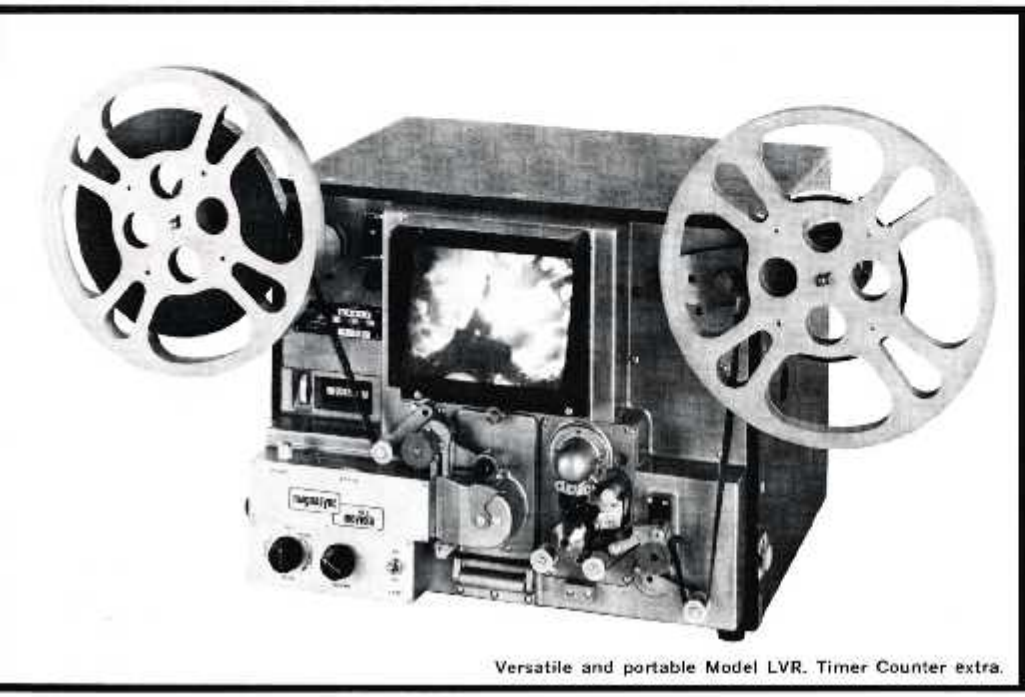
THE "M-50-M"

Where an individual operator requires an exceptionally bright picture, the 16mm table viewer can be equipped with a special fresnel viewing screen. The viewer can be used with the Magnasync/Moviola Displacement Recorder, DR-1 and URS Amplifier-Speaker, when equipped with a magnetic pickup head. The magnetic pickup head is located at the center of the projected frame to allow straight cut editing.

moviola library reader

For 16mm motion picture films

SAVES TIME AND SPACE FOR SCHOOLS • EDUCATORS FILM LIBRARIES • EXECUTIVES • TV STATIONS



Versatile and portable Model LVR. Timer Counter extra.

You can zip through film at up to six times sound speed (216'/min.) to points of interest, run at governed sound speed, slow to frame by frame speed, or stop for still frame analysis. The Moviola Library Reader will do all of this at variable speed forward or backward.

First time users require little instruction because of the simplified threading and control arrangement. If sound on the film is reproduced through ear phones, the quietness of film movement and absence of intermittent mechanism clatter, permit side by side operation of several machines in one room. Designed for durability and easy maintenance, the machine is a delight to owners with limited up-keep facilities.

No longer is it necessary to construct individual and expensive screening rooms. The Moviola Library Reader is a "Portable Screening Room" that can be set up wherever a table and an electrical outlet are available. It is possible, at last, to scan a 16mm motion picture film in a manner similar to scanning a book from a library shelf.

OPERATING FEATURES

PICTURE 4⅛" x 5½" rear projected, with ample illumination for viewing in a normally lighted room.

THREADING Simple, straight through — no loops.

SPEED Variable, from zero to six times sound speed in cine mode forward or reverse. Accurately maintains speed at any setting.

STILL FRAMING Can be still framed without overheating the film.

MARKING Access to projected frame provided for grease pencil marking.

REWINDING High speed in either direction without switching reels.

CAPACITY Handles up to one hour of 16mm film.

QUIET No intermittent mechanism noise. Motion picture action produced by a rotating 12 sided prism.

SOUND High quality maintained by film transport stabilizing system. Playback through built-in speaker or plugged-in earphones. Optical sound reproduction is standard. Magnetic sound may be added.

FILM PROTECTION Continuous motion principle saves wear and tear on film perforations and minimizes hold down pressure required in film gate.

DESIGN FEATURES

CONSTRUCTION Cast aluminum chassis precision machined. Sub assemblies are demountable as independent units. All castings and mechanical parts are precision machined. Machine is fully operational in or out of carrying case.

OPTICS Precision optics of professional quality.

SOUND SYSTEM Fly wheel stabilizer is clutch connected to prevent scoring prints. Transistorized amplifier requires no warm-up.

REEL SPINDLES Film tension automatically controlled by clutches that compensate for weight of reels.

DRIVE SYSTEM Special motor for combination variable speed or sound speed.

ILLUMINATION 115V, 150 watt projection lamp cooled by air blower. Film protected from heat by filter glass.

ELECTRICAL All circuits protected by fuse. Master switch with pilot lamp which shows machine is "ON."

MAINTENANCE One thumb screw releases lamphouse for changing projection lamp and cleaning aperture. All shafts and bearings lubricated from external points.

PORTABILITY Integral reel arms are hinged and swing into the case for carrying.

FINISH Light green hammer tone baked enamel. Case—textured vinyl.

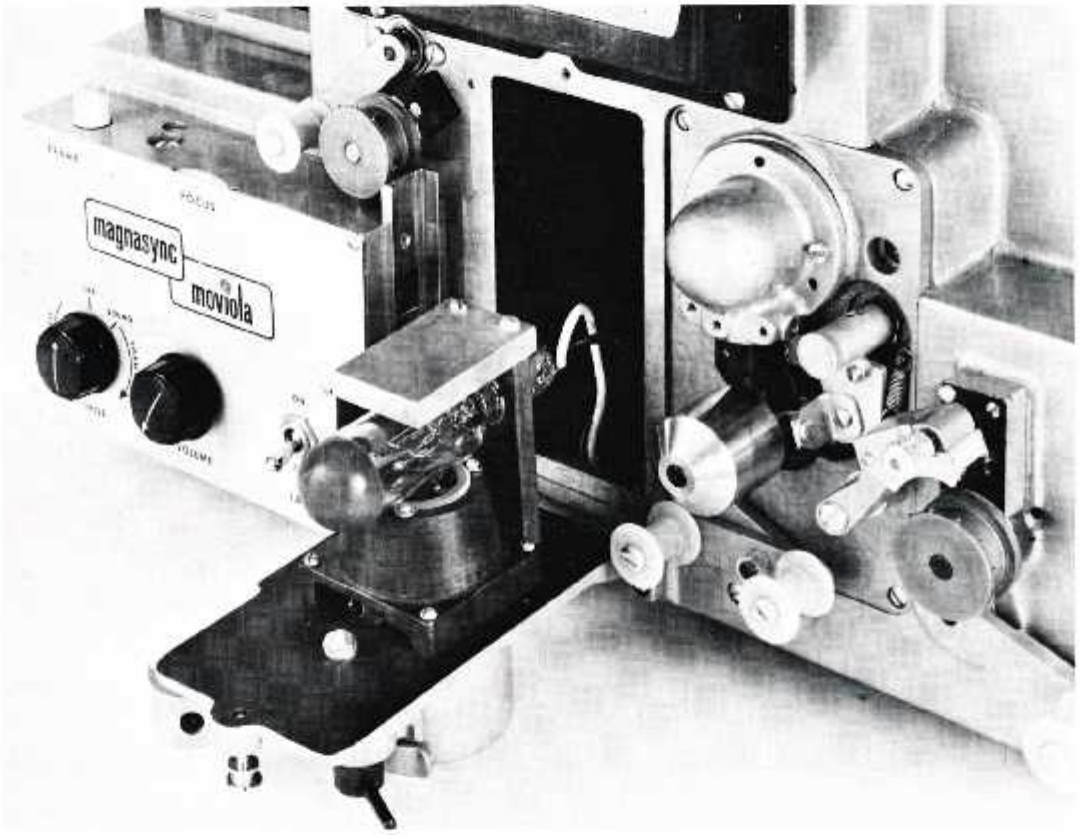
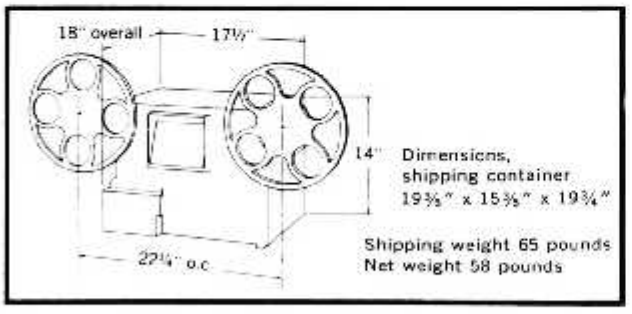


Illustration shows lamp house open for changing projection lamp and cleaning aperture plate.



ORDERING DESIGNATIONS

LV without sound (variable speed motor only)
LVR with sound (combination variable speed and governed sound speed motor).

OPTIONAL EXTRAS

Counters:
Timer — to read seconds, minutes, hours.
Footage — to read frames and feet.

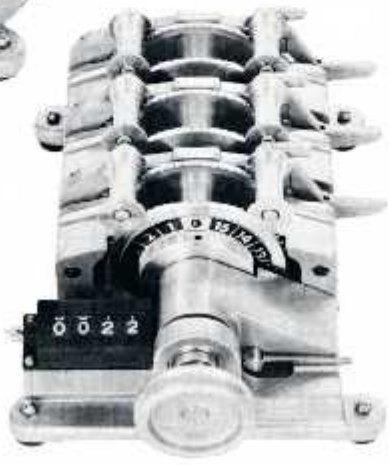
Magnetic sound:
Added to Model LVR only.

Headphones with cushions

Synchronizers

PRECISION MACHINES THAT MEASURE AND SYNCHRONIZE MOTION

MODEL SYB



MODEL SYC

MODEL SZD

MODEL SYBZB
(Arrangement B)

OPERATION

To simplify the Film Editor's task, Moviola's Synchronizers feature easy reading, easy operating characteristics. Sprockets on both 16mm and 35mm models are sized so that one revolution of the sprocket measures one foot of film. The counter indicates the number of sprocket revolutions or feet of film. Located on the first sprocket is a dial which counts the number of frames within each foot of film. Sixteen mm synchronizer dials read from 0 to 39, and correspondingly, 35mm dials read from 0 to 15. These dials can be rotated with respect to the sprockets to read zero at any desired frame. Also, the counters can be reset to zero to conform with zero dial settings. Counters "add" as film passes through synchronizer from "Left to Right." "Right to Left" operation available on special order. Film is held in positive engagement with the sprocket by two rollers mounted on a single hinged roller arm. Pushing a retaining latch allows a spring to raise the roller arm for placement and removal of film. Moviola Synchronizers are equipped with lever operated detent type brakes to position the sprockets at any desired frame.

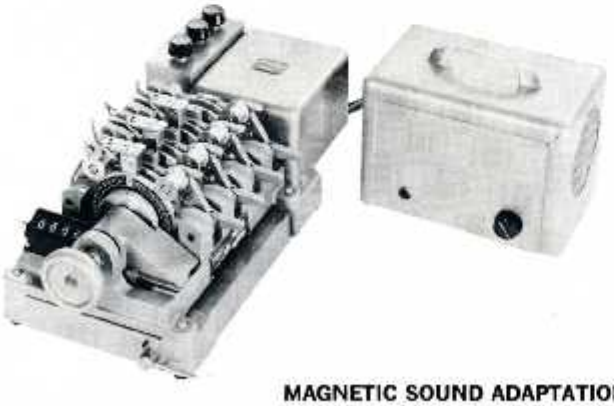
COMBINATIONS FOR 16MM & 35MM FILMS

A gear train is provided between the 16mm and 35mm sprockets so the 16mm and 35mm films are synchronized by frames. Combination machines are equipped with two counters, one reading feet of 16mm film and the other reading feet of 35mm film. Frames are counted by referring to dials on the first 16mm and the first 35mm sprockets. The gear train can be disengaged by shifting a lever. With the gear train to disengaged, the 16mm sprockets and counter can be operated independently from the 35mm.

CONSTRUCTION

- Strong cast aluminum frame with open base to permit illumination of film when operated over a light well.
- Main shaft turns on sealed, precision, ball bearings.
- Film retaining rollers equipped with self-lubricating bearings.
- Means provided for precise adjustment of space between rollers and sprockets.
- All parts accurately machined for interchangeability.
- Durable baked enamel and corrosion protective finishes.

MODEL SZA



MAGNETIC SOUND ADAPTATION

OPTICAL SOUND ADAPTATION

SPECIAL SYNCHRONIZERS

Synchronizers to fit your special requirements will be made to order. Following are some of the needs we have filled:

- Counter to count frames only.
- Counter to count seconds and tenths (referred to sound speed).
- "Program Timer" to read seconds—minutes—hours directly. No conversion tables necessary. Counter adaptable to all Moviola Synchronizers.
- Counters added to existing Synchronizers — contact factory for details.
- Clutch to disengage shafts between specified sprockets.
- Sprockets and adjustable width rollers for 35mm or 17½mm (split film).
- Sprockets for 35/32 (35mm film perforated double 16mm).
- Synchronizers adapted to reading Magnetic Sound (illustrated) with pick-up head mounted either above or underneath the film.
- 16mm Synchronizers adapted to reading Optical Sound (illustrated)—sprocket farthest from the operator only.
- Teeth nearest operator (16mm) on special order.

FOR 35MM FILM

MODEL	SPROCKETS
SYA	1
SYB	2
SYC	3
SYD	4
SYE	5
SYF	6

FOR 16MM FILM

MODEL	SPROCKETS
SZA	1
SZB	2
SZC	3
SZD	4
SZE	5
SZF	6

Standard arrangement for 16mm sprockets is with teeth farthest from the operator. Specify if teeth nearest the operator is desired.

COMBINATION SYNCHRONIZERS FOR 16MM & 35MM FILMS

MODEL	35mm SPROCKETS	16mm SPROCKETS
SYAZA	1	1
SYAZB	1	2
SYAZC	1	3
SYBZA	2	1
SYBZB	2	2
SYCZA	3	1

IMPORTANT: add "-a" or "-b" to the model designation for the arrangement desired (e.g. SYAZA-a):

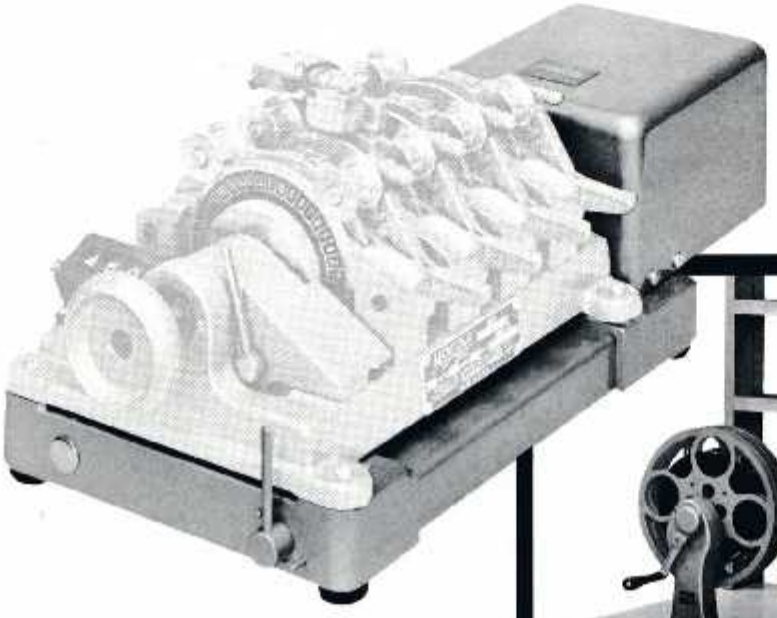
Arrangement

- -a: 16mm sprockets nearest operator; 35mm sprockets farthest from operator
- -b: 35mm sprockets nearest operator; 16mm sprockets farthest from operator

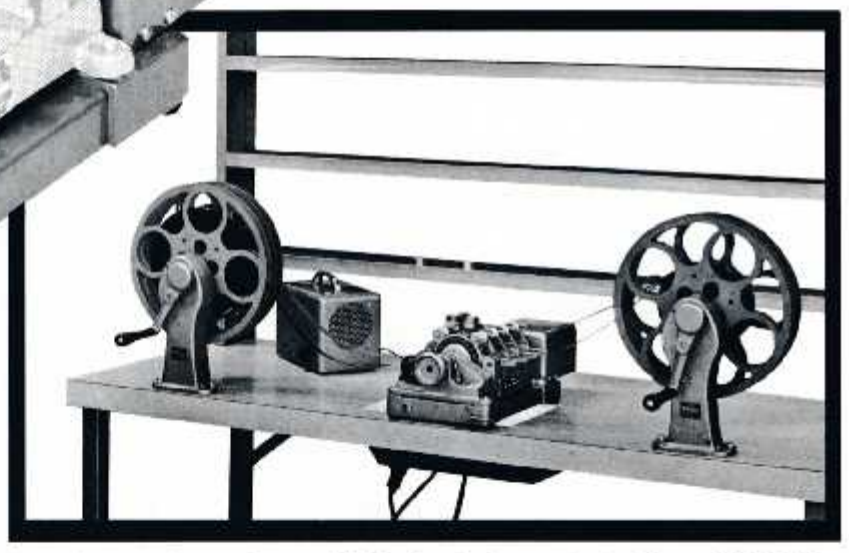
Motor drive kit for synchronizers

MODEL MDS

FOR 16MM, 35MM OR COMBINATION MOVIOLA SYNCHRONIZERS



Model MDS shown attached to model SZD Synchronizer



Set up for producing sound on your Moviola Synchronizer equipped with a model MDS Motor Drive for Synchronizer. The other equipment: magnetic pick-up model MS-16; Amplifier Speaker model URS; and two model WDS-16 Moviola Rewinders; table model TLR-2

With this attachment a Moviola Synchronizer that is equipped with a magnetic pick-up head and amplifier speaker unit will produce continuous intelligible sound. It eliminates the difficult task of trying to manually drive the film at sound speed with the Rewinder.

To operate, just turn one lever which starts the motor and engages the drive mechanism. Turn the lever off, the motor stops and the drive mechanism is disengaged leaving the Synchronizer free wheeling for manual use.

The MDS has a friction drive for the safety of the film. In case of a film snarl the synchronizer stops without damage to the film or to the motor.

This attachment is available as optional extra equipment on your new Moviola Synchronizer. Or, it can be installed on your present machine at our factory or by a Moviola dealer from instructions furnished with each kit.

When ordering as a kit designate the model and serial number of your Moviola Synchronizer.

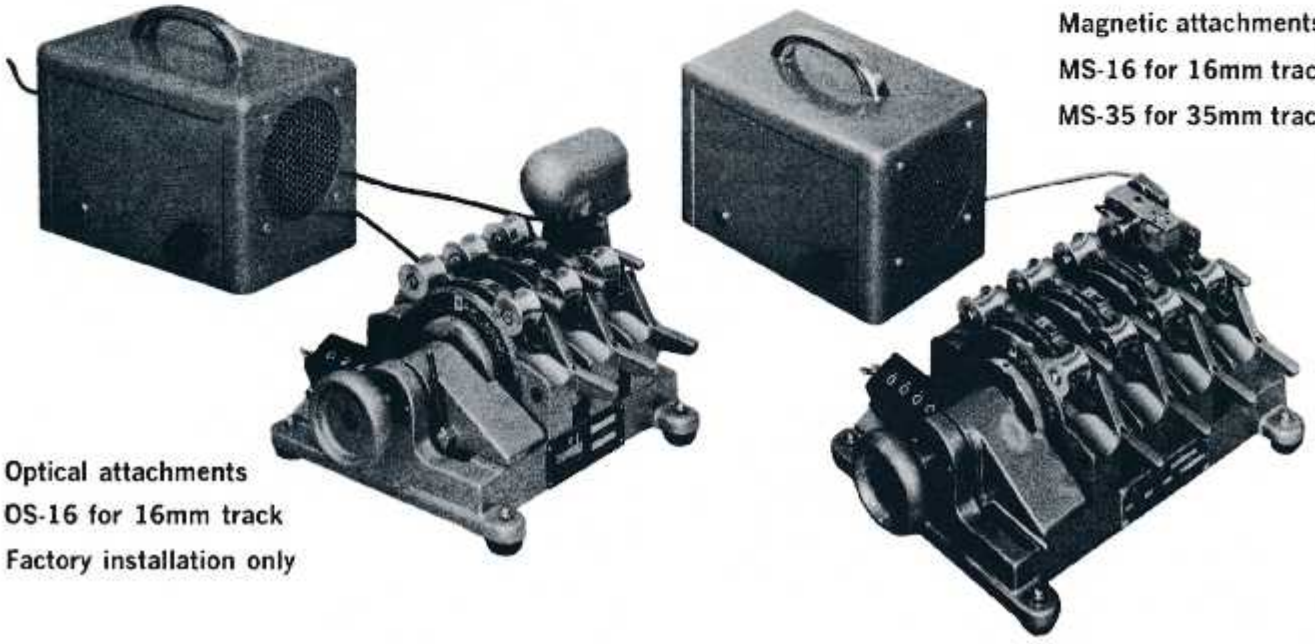
Standard models drive from left to right. Right to left drive will be supplied on special order.

Sound readers

FEATURING THE VERSATILITY OF SEPARATE COMPONENTS
OPTICAL TRACK • MAGNETIC TRACK • COMBINATION OPTICAL & MAGNETIC

MOVIOLA SYNCHRONIZER — SOUND READER ADAPTATIONS

See page 19 "Special Synchronizers" for additional information.



Magnetic attachments
MS-16 for 16mm track
MS-35 for 35mm track

Optical attachments
OS-16 for 16mm track
Factory installation only

OPTICAL SOUND READERS

• **SRO—35mm** **SRO—16mm**

For the user whose requirements are for reading just one medium. Reads left to right or right to left,

SRB—35mm, 16mm, 35-32mm

Moviola's versatile optical sound reader. Accommodates all the above media. Reads left to right, right to left, emulsion up or down.

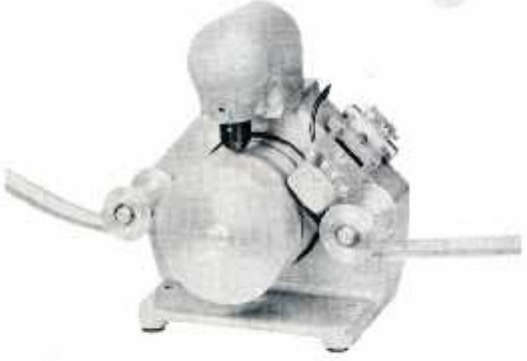
MAGNETIC SOUND READERS

SRM—35mm **SRM—16mm**

For the user whose requirements are for reading just one magnetic medium. Reads left to right or right to left, magnetic coating up or down.

SRM—MAGNETIC, 35mm, 16mm, 17½mm

Moviola's versatile magnetic reader accommodates all of the above media. Reads left to right, right to left, magnetic coating up or down.



COMBINATION SOUND READER

SRC { **OPTICAL—35mm, 16mm, 35-32mm**
MAGNETIC—35mm, 16mm, 17½mm

Moviola's completely versatile sound reader for both optical and magnetic track. It will read all media listed above, left to right, right to left, emulsion or magnetic coating up or down.

AMPLIFIER — SPEAKERS (FOR ALL MOVIOLA SOUND READERS)

MODEL URS

1. Optical or magnetic sound
2. 3 tubes
3. 4" speaker
4. Volume control
5. Headphone jack

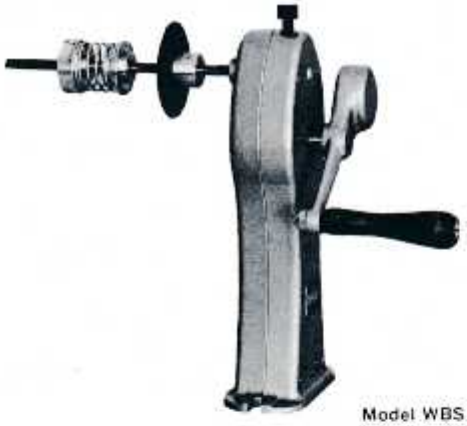
Rewinders

"SERIES W"

designed for professional use, and feature:

- Cast Aluminum housing
- Spindles mounted on ball bearings
- Machine cut gears, ratio of 1 to 4
- Capacity for 18" diameter reels
- Optional Friction Drag on spindle
- Spindles easily changed without tools
- Titewind Attachment available
- Video Tape Rewind

Model WA



Model WBS
Friction Drag extra

Model WDUS

Standard models range from 1-reel units to those with a hinged shaft for 4 reels. Models to accommodate more reels are available on special order. Models WCS-35 and WDS-16 have rigid shafts and can accommodate 3—10" dia. 35mm reels and 4—14" dia. 16mm reels, respectively, if reasonable care is exercised. For heavy duty service the WDUS models, which have a hinged shaft and an end support, are recommended.

On the multiple reel models the first reel is driven by the shaft key and the other reels are driven by friction disc spacers. The 16mm and 35mm spacers are of such a length that the reel spacing matches that of Moviola Synchronizers (1¾ centers on 16mm and 2¼ centers on 35mm Synchronizers).

A Spring Clamp unit is provided to maintain desired pressure between the reels and spacers. It features a quick-acting release and clamp, with no thumb screws or projections.

SWIVEL BASE Part No. 71600

With this device a rewinder can be rotated 360° and locked firmly at any position. Mounting holes match standard rewinder holes.

Titewinder
Model WAT

TITEWIND ATTACHMENT

Part No. 71226

This attachment mounted on a Model "W" Rewinder permits winding film tightly on a raw stock core without the danger of scratching the film. The attachment mounted on a "WA" Rewinder makes a "WAT" Titewinder.

Model WA-35BL

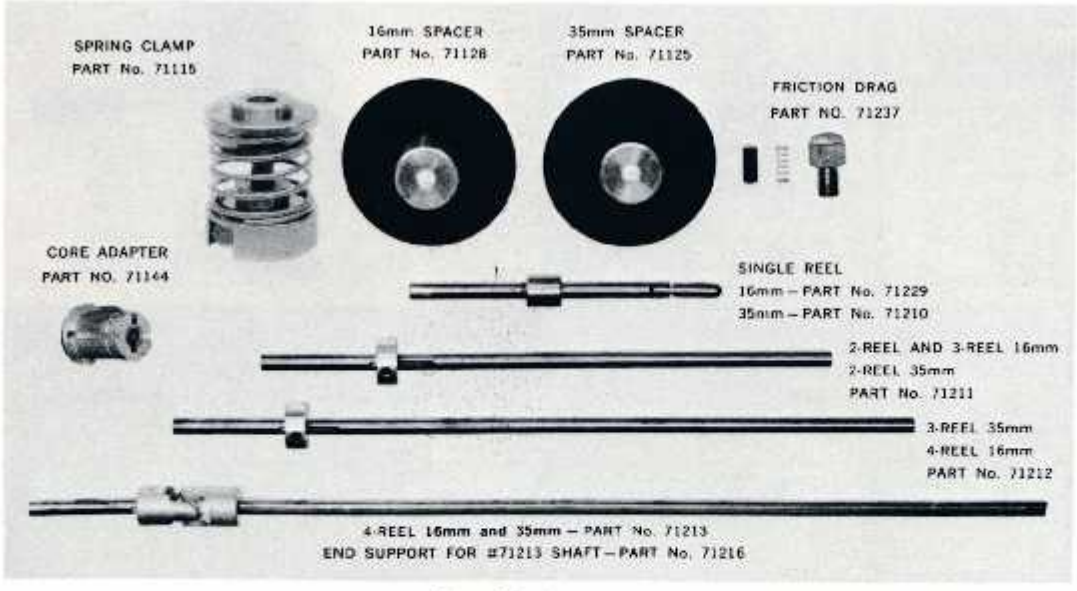
ELBOW BRAKE

A Moviola Rewinder equipped with Elbow Brake provides the operator with mechanical means of braking the supply reel during high speed rewinding. If an Elbow Brake is required on the left hand rewinder, add "BL" to the model designation. For the rewinder on the operator's right, add a "BR."

LEADER STANCHION

Part No. 71258

Easily installed — no drilling or tapping required.



MODEL DESIGNATION

Model	No. of Reels Accommodated
WA-16	1-16mm
WA-35	1-35mm
WBS-16	2-16mm
WBS-35	2-35mm
WCS-16	3-16mm
WCS-35	3-35mm
WDS-16	4-16mm
WDUS-16	4-16mm
WDUS-35	4-35mm

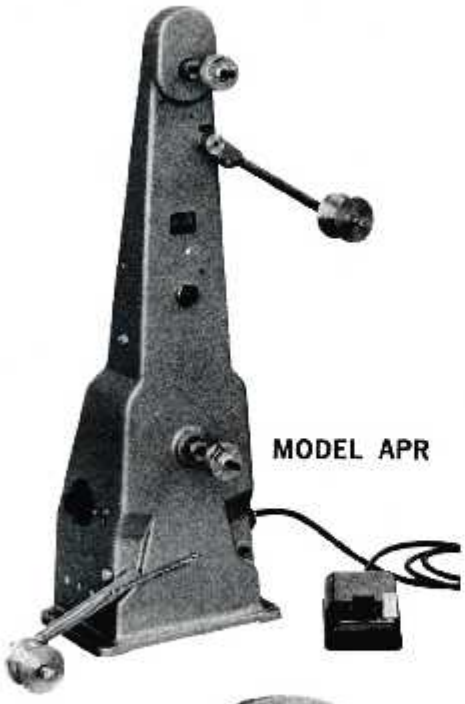
All models include necessary Spacers and Spring Clamp. Models WDUS are supplied with an end support.

If Spacers and Spring Clamp are not required, omit letter "S" and film size in Model designation when ordering.

Moviola power rewinders

FOR 16MM, 35MM and 70MM FILMS

TO SAVE SPACE, TIME, FILM DAMAGE



MODEL APR

Moviola's Model APR represents a new concept in power rewinding. It saves space and time and avoids film damage that often occurs during tedious manual rewinding. Because of the vertical arrangement of supply and drive spindles the APR requires less than half the space of the conventional left to right set-up. Yet when requirements call for careful foot-by-foot film inspection, the versatile Model APR can be operated in the conventional manner.

The Model APR winds from or to any combination of cores and reels faster than previously thought practical. By applying precision manufacturing techniques Moviola has produced a power rewind with balance characteristics that make high speeds possible. Up to 3000 feet of 35mm film can be rewound smoothly and safely in less than 1½ minutes. The Model APR's built-in film tension regulator assures a compact wind near the hub as well as at the outer diameter. Reels will contain the footage intended. Cored film is sufficiently tight to permit handling without worry of center "drop out."

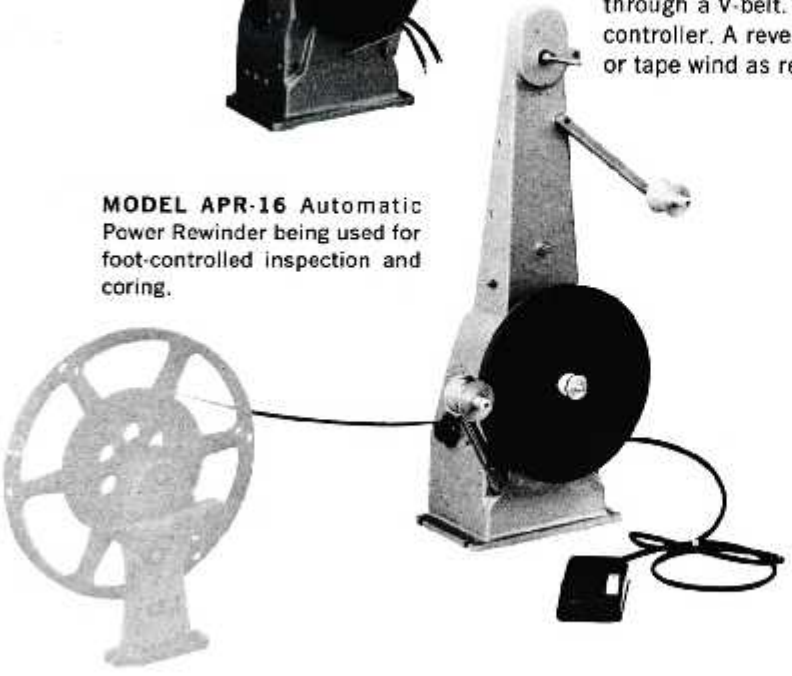
The APR sets the operator free to do other things during the rewind cycle. If there is a break in the film an automatic sensing mechanism and an electric brake prevent damage from a "runaway" supply reel.

MODEL APR-35 Set for automatic coring 3000′ of film.

DESIGN FEATURES

Two aluminum castings accurately machined and bolted together form the body of the APR which is finished in durable grey-green hammertone baked enamel.

The lower section houses a Universal Motor which drives the lower spindle through a V-belt. Speed may be controlled either by hand rheostat or foot controller. A reversing switch on the motor permits direct or reverse film or tape wind as required.



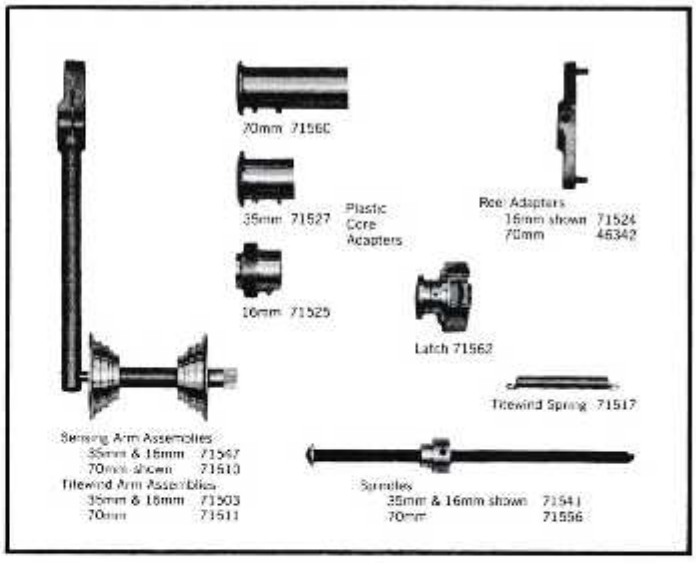
MODEL APR-16 Automatic Power Rewinder being used for foot-controlled inspection and coring.

The upper section supports the supply spindle which is equipped with a friction device that applies a drag proportional to the weight of film or tape and reel. In this manner near constant tension is maintained throughout the automatic winding cycle. If the spring loaded sensing roller between the reels is released either because of an unexpected break or the film or tape end, an electric brake is applied to the supply spindle and the power to the motor is turned off automatically.

For ease and speed of handling reels on and off the machine, a quick-acting clamp with push button release has been designed which slides on the spindle and automatically locks in place.

MODEL PR-16T
Heavy Duty Foot Controller extra

If requirements are for conventional left-to-right operation only, the Moviola PR Series Power Rewinder is recommended. For unusual power requirements the heavy duty foot controller shown (part no. 1199) may be ordered in place of the standard controller or as a separate unit.



MODEL DESIGNATIONS

	Automatic Power Rewinders*	Power Rewinders**
16mm film	APR-16	PR-16
35mm film	APR-35	PR-35
16 & 35mm film	APR	PR
70mm film	APR-70	PR-70

*Titewind attachment included.
**Titewind attachment extra, add "T" to model designation if required.

magnasync/moviola corporation

A Subsidiary of Craig Corporation

5539 RIVERTON AVENUE / NORTH HOLLYWOOD, CALIFORNIA 91601 / (213) 877-2791

All prices F.O.B. factory. Extra charge for export packing. Equipment will be invoiced at prices prevailing at time of shipment. Items on this price list are those most commonly used. Inquiries regarding special equipment are welcomed.

PRICE LIST • JANUARY 1, 1975

	ITEM	PRICE
FLAT BED FILM EDITING MACHINES	The M-77-16 Moviola Console Editor — 16mm six plate editing table equipped with One Picture Head with Composite Optical & Single System Magnetic Reproduce Heads, and Two separate Edge or Center Track Reproduce Heads, with Chronotach Readout Digital Display System for Frames & Footage and Seconds & Minutes, Push Button Advance/Retard Control and with Solid State Electronics	~~$7,750.00~~
M-86A $6,575.00	*Optional Extra* Foot Controller	45.00
	M84-16 Moviola Console Editor — 16mm 2-Plate Editing Table. One Picture with (composite) Optical and Magnetic Track. Digital Display System for Frames and Footage or Seconds and Minutes. This table can be interlocked with any Moviola 2-Plate, 4-Plate or 6-Plate Flatbed Editor.	$3,695.00
	M85-16 Moviola Console Editor — 16mm 4-Plate Editing Table. One Picture with (composite) Optical and Magnetic Track, plus One Magnetic Sound Track. Digital Display System for Frames and Footage or Seconds and Minutes. This table can be interlocked with any Moviola 2-Plate, 4-Plate or 6-Plate Flatbed Editor.	$4,995.00

FILM EDITING MACHINES "SERIES 20"

Viewing screens on all standard "Series 20" Moviolas are 4" x 5". Separate Sound Heads are equipped to reproduce either Optical or Magnetic sound. Composite Sound Heads reproduce optical sound only. The 16mm Composite Sound Head is available on special order to reproduce magnetic as well as optical sound.

35mm	16mm		
C-20	K-20	Table Model Viewer without reel spindles	$ 1,425.00
D-20	L-20	Table Model Viewer with reel spindles	1,950.00
UC-20-S	UK-20-S	Console Sound Model with picture head and separate sound head without reel spindles	3,250.00
UD-20-S	UL-20-S	Console Sound Model with picture head and separate sound head with reel spindles	3,795.00
UD-20-CS	UL-20-CS	Console Sound Model, including picture head with composite sound head installed thereon, and separate sound head, with reel spindles	4,403.00
UD-20-2S	UL-20-2S	Console Sound Model, including picture head and two separate sound heads with reel spindles	5,100.00
UD-20-C2S	UL-20-C2S	Console Sound Model with extra length cabinet for picture head with composite sound head installed thereon, and two separate sound heads, with reel spindles	5,875.00

"SERIES 20" OPTIONAL EXTRA EQUIPMENT		
	Counter, for Feet	$ 85.00
	Counter for Seconds only	110.00
	Counter for Frames only	189.00
	Counter for Hrs./Mins./Secs. (Available on L-20 and D-20 Models)	205.00
	Counter, Dual-Feet/Frames and Secs. only	200.00
	Litewell with tray	75.00
	Film Bag & Frame	18.00
	Transformer for 230 volt operation	75.00
	Model MK-16mm or MK-35mm Manual Search Head attachment	130.00
	Model CE-20 Cabinet Extension Bracket	215.00
	Solid State Amplifier for models UC-20-S, UK-20-S, UD-20-S, UL-20-S, UD-20-CS, UL-20-CS, UD-20-2S, UL-20-2S, UD-20-C2S and UL-20-C2S	210.00
35240	Cylindrical lens for projection box with 3" x 4" screen	55.00
35267	Cylindrical lens for projection box with 4" x 5" screen	75.00
35241	Support Bracket with screws, for above	7.00

"SERIES 20" COMPONENTS

35mm	16mm		
C-20H	K-20H	Picture Head only, suitable for mounting on existing Moviola Table Model or Console Model body without reel spindles	$ 1,095.00
D-20H	L-20H	Picture Head only with reel spindles	1,795.00
SC-20H	SK-20H	Separate Sound Head only, suitable for mounting on existing Console Model Body without reel spindles	795.00
SD-20H	SL 20H	Separate Sound Head only with reel spindles	995.00

ADD-A-SOUND HEAD KIT

	CE-20	Cabinet Extension Bracket suitable to accommodate an additional separate sound head, either 35mm or 16mm, on an existing "Series 20" Moviola	$ 215.00

35mm	16mm		
DS-20	LS-20	Composite Optical Sound Head suitable for mounting on standard 35mm or 16mm picture heads	875.00
		Optional Magnetic Sound available	245.00

MANUAL SEARCH HEAD KIT

35mm	16mm		
MK-35	MK-16	Search Head Kit with installation instructions to modify existing Separate Sound Head for manual sound track searching	$ 195.00

M-79	Moviola Junior	$1,195.00
	Optional Extra	
	Under-Mag in place of standard Over-Mag Heads, add $20.00 per track	20.00

M-50	Table Model Viewer	$ 295.00
M-50-M	Table Model Viewer with Magnetic Head (URS Amplifier $95.00)	345.00
	Slip On Hood Attachment for M-50 Viewer	10.00

LIBRARY READER 16mm only

LV	Without sound (variable speed only)	$ 2,395.00
LVR	With optical sound (combination variable speed and governed sound speed)	2,925.00
LVRM	same as LVR with Mag Sound	3,095.00
	Optional Extras	
	Counter-timer to read seconds, minutes, hours	235.00
	Counter-footage to read frames and feet	235.00

SYNCHRONIZERS

Synchronizers are furnished with a footage counter. Combination synchronizers are equipped with two footage counters. Counters "add" as film passes through synchronizer from "Left to Right." "Right to Left" operation available on special order at no extra charge. Standard arrangement for 16mm sprockets is with teeth farthest from the operator. Specify if teeth nearest operator is desired.

For 35mm	For 16mm	Sprockets	Price
SYA	SZA	1	$ 110.00
SYB	SZB	2	140.00
SYC	SZC	3	170.00
SYD	SZD	4	200.00
SYE	SZE	5	265.00
SYF	SZF	6	295.00

COMBINATION 16 and 35mm SYNCHRONIZERS

Price and Delivery on request.

SYNCHRONIZER OPTIONAL EXTRA EQUIPMENT

Counter for Hrs./Min./Secs. (in place of footage counter)	Additional..	$ 30.00
Counter for Frames only (in place of footage counter)	Additional..	95.00
Additional Seconds or Frames Only counter		135.00
Additional Hrs./Min./Secs. Counter		115.00
Sprocket for either 17½ or 35mm (in place of 35mm)	Additional..	22.50
Sprocket for 35mm (in place of 16mm)	Additional..	22.50
Optical Attachment OS-16 for 16mm (rear sprocket only)		150.00
Clutch mechanism disengaging adjacent sprockets (Specify location desired on ordering)		66.00
Magnetic attachment for synchronizer arm. MS-35 for 35mm; MS-16 for 16mm		35.00
Under Mag installed on original order per installation		55.00
Model MDS Motor drive attachment for synchrometer (Specify number and size of sprockets on your synchronizer when ordering installed) Catalog page 20		200.00

MOTOR DRIVE KIT for SYNCHRONIZERS

35mm	16mm		
MDS-35	MDS-16	Motor Drive Kit with instructions for installation on existing Moviola Synchronizers. On ordering designate model and serial number of your synchronizer	$ 190.00

SOUND READERS

Optical Only			
SRO-35mm	SRO-16mm	Reads just one medium, left to right emulsion up, or right to left emulsion down	$ 180.00
SRB-35mm, 16mm, 35-32mm		Reads any of the three optical media, left to right, right to left, emulsion up or down	235.00
Magnetic Only			
SRM-35mm	SRM-16mm	Reads just one medium, left to right or right to left, magnetic coating up or down	80.00
	SRM	For 35mm, 16mm, or 17½mm, left to right, right to left, Magnetic coating up or down	115.00
Comb. Opt. & Mag.			
	SRC	Reads all media listed above, left to right, right to left, emulsion or magnetic coating up or down	315.00

AMPLIFIER — SPEAKER UNITS

	URS	Optical or Magnetic (4" speaker)	95.00

REWINDERS

Designation with Shaft only:			
WA-35	WA-16	Accommodates 1 reel	$ 28.00
	WB	Accommodates 2 reels 35mm or 2 & 3 reels 16mm	29.00
	WC	Accommodates 3 reels 35mm or 3 & 4 reels 16mm	29.00
	WD	Accommodates 4 reels (16mm only)	29.00
	WDU	Accommodates 4 reels 35mm & 16mm (Furnished with Universal Joint and End Support)	37.50
	WAT	Model WA-35 with #71226 Titewind Attachment for winding either 35mm or 16mm onto plastic cores	57.50
Designation with shaft, spacers, and clamps as required:			
WBS-35	WBS-16	Accommodates 2 reels	$ 37.00
WCS-35	WCS-16	Accommodates 3 reels	39.00
	WDS-16	Accommodates 4 reels (16mm only)	41.00
WDUS-35	WDUS-16	Accommodates 4 reels (furnished with Universal Joint and End Support)	53.00
		Elbow Brake, extra	17.00
		Add "BL" for Elbow Brake on left hand rewinder, "BR" for right	

REWINDER PARTS	Part Number		
		"W" Rewinder, less shaft	$ 23.00
	71210	Shaft, 1 reel, 35mm	5.00
	71229	Shaft, 1 reel, 16mm	5.00
	71211	Shaft, 2 reels 35mm or 2 & 3 reels 16mm	6.00
	71212	Shaft, 3 reels 35mm or 3 & 4 reels 16mm	7.20
	71213	Shaft, 4 reels 35mm or 16mm with Universal Joint	15.20
	71216	End Support for #71213 Shaft	4.00
	71125	Spacer, 35mm	2.00
	71128	Spacer, 16mm	2.00
	71115	Spring Clamp	6.60
	71226	Titewind Attachment	29.50
	71237	Friction Drag (thumb screw, spring and plug)	4.00
	71144	Adapter for Plastic Core	9.00
	71258	Leader Stanchion	24.00
	71635	Stacking Block	10.00
	71236-1	Special Shaft with Universal Joint 20" long	21.00
POWER REWINDERS, Automatic	APR-16	Automatic Power Rewinder for 16mm	$ 525.00
	APR-35	Automatic Power Rewinder for 35mm	525.00
	APR	Automatic Power Rewinder for 16 and 35mm	550.00
	APR-70	Automatic Power Rewinder for 70mm	550.00
		Titewind attachments included with automatic Power Rewinders	
		Heavy duty foot controller ordered as separate unit Part No. 1199	72.00
POWER REWINDERS Conventional	PR-16	Power Rewinder for 16mm	275.00
	PR-35	Power Rewinder for 35mm	275.00
	PR	Power Rewinder for 16 and 35mm	275.00
	PR-70	Power Rewinder for 70mm	350.00
		Titewind attachment, extra	45.00
		Add "T" to model designation 70mm	60.00

magnasync moviola

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Printed in U.S.A.

Warranty

Magnasync/Moviola equipment is manufactured under the most rigid quality control conditions. All components are carefully tested and inspected before assembly, and the completed equipment is tested for performance before shipment. If the original purchaser encounters any difficulty with the operation of Magnasync/Moviola equipment, he should immediately CONTACT HIS DEALER and take full advantage of the warranty, which is offered under the following terms and conditions:

All equipments procured hereunder are guaranteed for a period of six (6) months from date of delivery, except expendable items, such as lamps, fuses, belts, etc. which are guaranteed for ninety (90) days from date of delivery. During the guarantee period, all broken or defective parts not caused by accident or misuse through fault or negligence by the purchaser, will be replaced at the manufacturer's expense, including one way transportation costs.

This warranty is ineffective if other than Magnasync/Moviola approved materials and parts are used in the repair, maintenance or operation of the equipment.

This warranty is in lieu of all other warranties expressed or implied, including any implied warranty of merchantability.

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